

The Effect of Anterior Tooth Position on Trumpet Performance Quality

H.Z. CILINGIR¹, A. GHONEIMA², J. DAGG³, and K. KULA²

1. Music Performance - Trumpet, University of Cincinnati, College-Conservatory of Music, Anadolu University State Conservatory, Cincinnati, OH.
2. Department of Orthodontics, Indiana University School of Dentistry, Indianapolis, IN.
3. Quantitative Methodology and Statistics, University of Cincinnati, Cincinnati, OH.

Indiana University – Purdue University Indianapolis

Abstract

Objectives: Music teachers contend that the arrangement of anterior teeth affects trumpet performance by influencing the embouchure. Since there is little quantitative data to support this claim, the purpose of this study was to determine whether trumpet performance skills are associated with the malalignment of anterior teeth. **Methods:** Following IRB approval, 70 trumpet students (55M:15F; aged 20-38.9 yrs.) from 11 universities were consented to complete a survey concerning dental history and trumpet playing habits. The students were asked to play a scripted performance skill test (flexibility, range, endurance, and articulation exercises) on their instrument in a soundproof music practice room while being audio and video recorded. A three-dimensional (3D) cone beam computerized tomograph (CBCT) was taken of each student the same day as the skill test. Following reliability studies, overjet, overbite, and degree of anterior tooth irregularity (Little's Index) were measured on the 3D CBCT. Nonparametric correlations, accepting $p < .05$ as significant, were used to determine if there were significant associations between Little's Index in the maxillary and mandibular anterior dentition and any of the performance skills. **Results:** Interrater reliability was excellent (>0.8). Significant ($p < 0.05$), but weak ($r < 0.30$) associations were found only between Little's Index of the mandibular anterior dentition and the performance skills: flexibility (exercises a, c and avg) and articulation (double tongue). No other associations were significant. **Conclusions:** University trumpet students with mandibular anterior teeth that are smoothly aligned have significantly better performance skills than those with misaligned mandibular anterior teeth; however, the association is weak.

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